



Seed Connect

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FSII is pleased to inform you that in a landmark decision, the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India has exempted SDN1 and SDN2 genome edited plants from Rules 7-11 of the Environment Protection Act (EPA) for manufacture, use or import or export and storage of hazardous microorganisms or genetically engineered organisms or cells rules-1989.

SDN1 introduces changes in the host genome's DNA through small insertions or deletions without introducing any foreign genetic material. In SDN 2, the edit involves using a small DNA template to generate specific changes. Both these processes do not involve foreign genetic material and the end result cannot reliably be differentiated from the same changes that can occur by traditional breeding or spontaneously in nature.

FSII along with its special interest group Alliance for Agri Innovation (AAI) have been working tirelessly to inform and educate stakeholders on the benefit of gene editing technology presenting through scientific facts and data. Case studies from around the world such as GABA tomato, high oleic canola and soybean, non-browning mushroom have created a basis for showcasing the high value crops and beneficial traits that can enhance the quality of existing crops.

Through the exemption, the Government of India has prescribed relatively easier norms for their introduction. FSII believes that this move will encourage and motivate scientists and researchers to continue their work on improving crop resilience. It will also pave way for increasing the research and development in the field and in the country.

We hope that the Government of India understanding the value gene editing can bring to the agriculture sector will soon notify the gene editing guidelines and help India join the league of agriculturally progressive nations.

In this newsletter we have also covered news around several important developments on agriculture across India, globally and in the area of research. We hope you find it a good read!



Shivendra Bajaj
Executive Director
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News from India and Around the World

[India attains \\$400bn exports mark, but trade deficit remains a concern](#)

(Mint)

Engineering goods exports nearly jumped 50% over last year, electronic goods also jumped 41% last year. A huge jump was seen in the agricultural exports and non-basmati rice, wheat and marine products led the growth," Santosh Kumar Sarangi, Director General of Foreign Trade (DGFT) said during the press conference. The official said that export items that showed a rise in volumes but not in value included agricultural commodities such as rice and motor vehicles.

[Central govt exempts genome-edited crops from stringent GM regulations](#)

(Business Standard)

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[Superfoods can improve financial health of Indian farmers](#)

(AgroSpectrum)

The global wave of consuming 'superfoods' has taken Indians in its fold too. People are going back to the old treasures like amla (Indian Gooseberry), pumpkin seeds, berries, which are said to be rich in antioxidants, vitamins, minerals. These superfoods have multiple benefits as their consumption helps in weight loss, promotes heart health, control blood pressure, prevent ageing as well as reduce the risk of certain chronic diseases. Superfood markets are gaining considerable space in the food market due to the rising awareness of leading a naturally healthier lifestyle. People especially the youth are ready to spend significant money on health and nutrition and superfoods can contribute towards achieving that.

[How Govt of Maharashtra Sowed Seeds of Prosperity for Soybean Farmers](#)

(Krishi Jagran)

Dattatreya Doke is hoping for a windfall profit from his soybean crop. This farmer from Dokewadi in Osmanabad's Bhum taluka said that this year, in addition to the Kharif crop (sown in June-July and harvested after September), he would have another crop ready for markets by next April. This was made possible by Doke's decision to plant a second soybean crop during the rabi season (sown in December-January and harvested after April). Doke attributes his decision to the second crop of soybeans to the state agriculture department's extension services, which encouraged him and other farmers in his area to do so.

[Uttar Pradesh CM Yogi Adityanath, World Bank expert discuss agriculture](#)

(The Times of India)

World Bank's lead agriculture expert Andrew Goodland called on the Chief Minister of Lucknow. It was a courtesy call. During the meeting, the CM held detailed discussions with Goodland on agriculture and rural ecology schemes. The Government spokesperson said there is a proposal to spend Rs 3500 crore under the schemes over a period of five years. With the aim of doubling the farmer's income, agriculture-based industries would be operated through agriculture production organisations and natural farming would be encouraged under the scheme.

[Decarbonising Indian agriculture: Chunk of capital needed for sustainable agri-pathways can come from repurposing existing subsidies](#)

(The Financial Express)

transition to sustainable and climate-smart agriculture and land use can create many jobs and enhance incomes apart from mitigating GHG emissions and environment pollution. Apart from livestock, the major constituents of agriculture GHG emissions are rice cultivation (17.5%), fertiliser application

(19.1%), and field burning of agricultural residues (2.2%). Deep decarbonising pathways would include reducing biogenic methane from cattle and rice cultivation; inculcating resource efficiency by reducing consumption of irrigation water, chemical fertilisers, and energy for cultivation/ harvesting/transport as well as farm waste processing; reducing waste in the food supply chain; and building climate resilience through deploying automation and technology.

[Here's how India can unlock the power of agricultural technology through private public partnerships](#)

(We Forum)

The Indian Government's proposal to deliver hi-tech services to farmers through public private partnerships (PPPs), recently presented in its annual budget, is likely to offer critical support for the agricultural sector at a time when it is greatly needed. The COVID pandemic and the war in Ukraine has massively disrupted the global food system, putting huge pressure on agriculture-focused countries like India to provide more sustainable options. This is where agricultural technology could prove key. India has potential economic value of \$50-65 billion through digital agriculture by 2025 translating to 23% addition to the current value of agricultural produce, according to a report by the country's Ministry of Electronics and Information Technology and McKinsey & Company.

[Budgeting for a well-fed, self-reliant India](#)

(The Indian Express)

In the backdrop of the ongoing war between Russia and Ukraine, Prime Minister Narendra Modi has emphasised the need for India to be atmanirbhar (self-reliant) in defence equipment. Finance Minister Nirmala Sitharaman also pointed out that hardly any defence equipment was bought during the 10 years of UPA rule preceding the Modi government. We may add a footnote here that for the Amrit Kaal (next 25 years) that the Modi government has announced, we need to be self-reliant not just in missiles (defence equipment) but also in meals (food). As the old proverb goes, no army can march on an empty stomach. "Jai jawan, jai kisan" (salutation to the soldier and salutation to the farmer) was the slogan given by Late Lal Bahadur Shastri, and Atal Bihari Vajpayee added "jai vigyan" (salutation to the scientist) to that. Focusing on science and scientists is critical for attaining self-reliance today.

[The practice of urban agriculture in Indian cities](#)

(ORF)

Urban agriculture is the practice of farming in urban and peri-urban areas. Farming connotes a wide range of food and non-food products that can be cultivated or grown, including rearing livestock, aquaculture and beekeeping. However, in the context of Indian cities, the focus is on the cultivation of vegetables, fruits, and flowers for human consumption. It is now part of a growing trend in cities globally to look towards locally produced food. Besides city administrations, urban agriculture has started drawing the attention of many non-governmental organisations (NGOs), community groups, and citizens. At the global level, the Food and Agricultural Organization (FAO) believes urban and peri-urban agriculture has a role in food and nutritional security. The Urban Food Agenda is an FAO flagship initiative to enhance sustainable development, food security, and nutrition in urban and peri-urban areas. It encourages partnerships with different stakeholders such as civil society, academia, international agencies, city entities, and the private sector.

[Agriculture products export up by over 25 per cent in first 10 months of FY 2021-22: Government to Lok Sabha](#)

(The Tribune)

Patel said exports of some other major agricultural products like wheat, sugar, and cotton have registered a substantial increase during the current year. "During the period from April 2021 to January 2022 of the current financial year, exports of agricultural products have amounted to USD 40.87 billion compared to USD 32.66 billion over the corresponding period of previous year, registering an increase of 25.14," she said during question hour. The minister said the rise in agricultural exports improves realisations for farmers and has a positive impact on their income. In order to ensure that the farmers benefit from exports, the government has launched a Farmer Connect Portal for providing a platform for Farmer Producer Organisations Companies (FPOs/FPCs) and cooperatives to directly interact with exporters, she said.

[Agritech enabling Farming-as-a-Service \(FaaS\) in India](#)

(The Hindu Business Line)

The answer lies in embracing innovation. Sustainable food production requires transitioning from resource-intensive, high-input farming methods to long-term, outcome-based services. Thanks to Agritech, even small farmers can adopt farming as a Services (FaaS) as the panacea in emerging economies. It attracts a new interest from stakeholders — governments, non-government organizations (NGOs), the private sector, and the venture capitalists funding the start-ups. A toll-free number and a mobile app connects farmers to the platform to place their equipment and services orders. Shocks of equipment breakdown and consequent unexpected losses are avoidable as the farmers pay only for the equipment usage service.

[Unlocking the potential of India's agricultural sector](#)

(The Times of India)

It is noteworthy that recent quarterly GDP estimates post-COVID shows agriculture as the only sector to register positive growth of 3.4% during the financial year (FY hereafter) 2020–21 (Quarter 1: April 2020 to June 2020). This is a testament to the robustness and resilience of India's agricultural sector that cushioned the Indian economy through the crisis. The heightened responsibility and potential of the sector during the pandemic led to it being prioritized during the post-pandemic recovery. Now more than is a compelling need for the ecosystem to leverage tech innovations to create a self-reliant agricultural sector that is the gold standard for the rest of the world.

[Nod to Rs 108-cr agriculture project in Himachal Pradesh](#)

(The Tribune)

Chief Minister Jai Ram Thakur has thanked the Central Government for approving Rs 108 crore for the Integrated Digital Agriculture Platform, a proposal of which was submitted to the Ministry of Agriculture and Farmers' Welfare, Government of India, by the State Agriculture Department. He said the project titled "Transformation in Agriculture Using Emerging Technologies" would develop in-house competency in providing Information and Communication Technologies (ICT)-based services to farmers, thereby reducing the administrative process and increasing efficiency.

[Drones can transform agriculture sector and boost farm income](#)

(The Tribune)

Drones with their applications are making a big impact on the life around us as they are making a foray into every sector due to their multifarious usages and last mile connectivity. After the delivery giants like Amazon and Walmart started operating drones for commercial purpose, governments too are trying to use unmanned vehicles for public welfare. The government of India has come up with strong and effective policies for the growing range of commercial possibilities that the drone technology offers. The Prime Minister of India recently flagged off 100 Kisan drones, which can be used for spraying fertilisers and pesticides judiciously, at a lower cost and lesser time. Drones in agriculture can be used during farm operations, monitoring as well as for marketing purposes. They have the potential to take over the routine manual farm activities, optimise crop inputs, reduce wastages and cost and increase productivity.

[India's Agriculture and Allied Sector demonstrates its prowess at EXPO2020 Dubai](#)

(ANI News)

The sector highlighted India's investment-friendly policies, growth opportunities and showcasing country's core strengths across different areas of agriculture and allied sectors to the global investors. at the India pavilion, the theme was represented by celebrating the diversity of Indian agriculture under four major subsectors- Millets, horticulture, organic and food basket of the world.

[Government in process of setting up committee on MSP: Agriculture Minister](#)

(CNBCTV18)

The government is in the process of setting up a panel on Minimum Support Price (MSP), Agriculture Minister Narendra Singh Tomar said in the Lok Sabha. While announcing the repeal of three farm laws in November last year, Prime Minister Narendra Modi had promised to set up a committee to make

MSP system more effective and transparent as well as suggest ways to promote zero budgeting-based agriculture. "As per the changing requirements of the country to change the cropping pattern, to make MSP more effective and transparent, and to encourage natural farming method of agriculture, setting up a committee is under process," Tomar said in a written reply to the Lok Sabha.

New Research

[Plant responses to multifactorial stress combination](#)

(New Phytologist)

Human activity is causing a global change in plant environment that includes a significant increase in the number and intensity of different stress factors. These include combinations of multiple abiotic and biotic stressors that simultaneously or sequentially impact plants and microbiomes, causing a significant decrease in plant growth, yield and overall health. It was recently found that with the increasing number and complexity of stressors simultaneously impacting a plant, plant growth and survival decline dramatically, even if the level of each individual stress, involved in such 'multifactorial stress combination', is low enough not to have a significant effect. Here we highlight this new concept of multifactorial stress combination and discuss its importance for our efforts to develop climate change-resilient crops.

[Agriculture Research Service looks to precision technology, data to boost farming and ranching](#)

(Federal New Network)

With the global population expected to reach 9 billion by 2050, the Agriculture Department's research arm is turning to new technologies and data analysis to make crop production and other forms of farming less costly and more efficient. But as so-called precision agriculture advances, the new technologies are running into an age-old problem: How do you convince users to adopt them? "The reality is, when you look at the vast majority of our farmers, ranchers and processors out there, they're really not using these technologies," said Mike Buser, national program leader for engineering, natural resources and sustainable agricultural systems at the Agricultural Research Service, whose USDA team grapples with the issue every day said. "Part of that is an education piece."

[Jharkhand Agri research institutions develop 16 high yielding varieties of crops](#)

(The Telegraph)

State Variety Release Committee (SVRC) of Jharkhand has released 16 improved varieties of nine crops developed by different agricultural research institutions for Jharkhand, of which four have been developed by scientists of Birsa Agricultural University (BAU) after years of experimentation, following different breeding techniques and protocols. The newly released varieties include seven of rice, two of chilli and one each of tomato, litchi, bael, linseed, soyabean, field pea and brinjal. These high-yielding, early-maturing, varieties suitable for drought-prone, dryland ecology of Jharkhand are resistant to major diseases and pests.

[New research shows how to include more farmers in the design of new environmental policies](#)

(Institute for Sustainable Food)

A paper released today (30 March 2022) explores how government policymakers can include a wide range of farmers in the design of new Environmental Land Management (ELM) schemes, using different engagement strategies to work with individuals who may be harder to reach. The research, led by Dr Ruth Little from the University of Sheffield's Department of Geography, found there are multiple reasons why farmers might be reluctant to engage with policymakers. These include negative past experiences, a lack of time, a lack of interest, as well as perceived scheme bureaucracy, age, lack of trust, and bad internet access. Researchers outlined a series of recommendations for how policymakers can improve methods of engagement so that a wide range of farmers can be included in the design of new policies for agriculture and environment.

[Deserts 'breathe' water vapor, study shows](#)

(Eurekalert)

Deserts may seem lifeless and inert, but they are very much alive. Sand dunes, in particular, grow and move – and according to a decades long research project, they also breathe humid air. The findings

show for the first time how water vapor penetrates powders and grains and could have wide-ranging applications far beyond the desert – in pharmaceutical research, agriculture and food processing, as well as planetary exploration. The team's paper published in the Journal of Geophysical Research-Earth Surface. Wanting to measure matter with greater sensitivity, lead author Michel Louge, professor of mechanical and aerospace engineering at Cornell University, developed a new form of instrumentation called capacitance probes, which use multiple sensors to record everything from solid concentration to velocity to water content, all with unprecedented spatial resolution.

[New estimation strategy improves soil carbon sampling in agricultural fields](#)

(Science Daily)

Researchers have evaluated strategies for efficiently estimating soil organic carbon in agricultural fields. Quantifying soil organic carbon stocks in agricultural fields is essential for developing sustainable management practices and monitoring. The research team found that in a typical Midwestern agricultural field, public soil surveys and satellite imagery can be leveraged to efficiently select sample locations. This may reduce the number of samples needed to achieve a given precision (compared to random sampling).

[Key investments into pea and lupin research and processing](#)

(Portage Online)

Protein Industries Canada and a consortium of partners is working on creating one of the most functional plant protein ingredients on the market using peas and lupins. Project partners include More Than Protein Ingredients Ltd., Quantum Mechanical Technology Inc. and Hamman Ag Research Inc. More Than Protein Ingredients will be building a dedicated commercial-scale innovation line that will take plant-based protein extraction to the next level, producing the next generation of food protein ingredients. As well, More Than Protein Ingredients is constructing a new processing facility near Bowden, Alberta. Protein Industries Canada is investing \$5.7 million into the \$29 million project, with the balance of the funding coming from the other consortium partners.
